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## INDIVIDUALIZED TREATMENT OF DIABETES

JOHN P. PETERS, M.D.

PROFESSOR OF MEDICINE  
YALE UNIVERSITY

In the last few years there has been a complete revolution in our attitude towards diabetes and the metabolic problems connected with this condition. Although the relation of human diabetes to the pancreas hung always by a tenuous thread of circumstantial evidence, the only reproducible condition with which it could be connected was that brought about by destruction or removal of the pancreas. The adherents of the pancreatic theory of diabetes took new cheer when insulin was discovered. Always, however, there was a sceptical minority that refused to be convinced. Negative pathology and certain obvious distinctions between experimental diabetes in the dog and clinical diabetes in the human seemed to them more than trivial matters. The advent of insulin did not shake their scepticism because it soon became evident that insulin acted not only on the hyperglycemia produced by removal of the pancreas, but on hyperglycemia of any kind, whether it arose from administration of excessive amounts of glucose, injections of adrenaline or any other cause. It has now been demonstrated that hyperglycemia, glycosuria and other phenomena of diabetes can be induced in animals by injections of extracts of the pituitary gland and that the effect of the pituitary does not demand the intermediation of the pancreas. The role of the pituitary and other endocrine glands in carbohydrate metabolism will be described by Dr. Long. I mention it only as the most convincing reason for discarding unitarian theories of the origin of diabetes and approaching the subject with an open mind. Such an attitude, however, carries with it the implication that diabetes is no longer a disease entity. Among the cases we label diabetes may be included a variety of diseases. All that we can recognize is a common functional disorder, the inability to utilize carbohydrate in the normal manner—or perhaps it would be safer still to say, to

the normal extent, drawing only a quantitative distinction.

If this is the proper view to take of diabetes, and I contend that it is the logical modern view, our responsibility to the diabetic and the road to advances in therapy take on an entirely new aspect. Statistical treatment of data becomes a relatively unimportant—I wish I could say an equally harmless—parlor game. The problem before us is one of differentiation; it is time to examine the trees and to stop getting lost in the woods. Evidence that light is being thrown on the subject by such careful scrutiny can be found in the studies of Himsworth and others on the various types of reaction to insulin. Furthermore, if we recognize diabetes only as a functional disorder, it behooves us to lay aside our clinical rules of thumb and to adopt more physiological lines of reasoning. It is our duty to consider each patient as an individual experiment set before us by nature for examination and analysis.

I can not resist the temptation to pause for a moment to point an example of statistical fallacy. The proper proportions of carbohydrate and fat in the diets of diabetics was a subject of controversy long before insulin was discovered. Allen, Joslin and others proclaimed the poisonous nature of high fat diets. The only alternative at the time, for most diabetics was starvation. Some, among them Woodyatt and Newburgh, had the poor taste to suggest that death by starvation was no better, and possibly more uncomfortable, than being poisoned by fat. When they actually put their theory to the test they found that a certain number of diabetics escaped death by starvation and seemed to bear up well under the poisonous effects of high fat diets. For the others, the severe diabetics, there was no escape from death by any means. Now that insulin has made it possible to save these latter the same old controversy arises. Geyelin, Sansum and others proclaim the virtues of high, almost unlimited, carbohydrate diets; Newburgh and others

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publish quite as good statistics with high fat diets. Perhaps the clue to this paradox lies in some data published by another observer. In a comparison of two series of patients treated respectively with high carbohydrate and low carbohydrate diets he found that with high carbohydrate diets a larger proportion received insulin, but that the average dose of insulin per person was smaller. From such statistics it is utterly impossible to conclude that high carbohydrate diets are advantageous. Granted that, as the author claims, the two groups are comparable, 20 per cent of the patients who managed without insulin on low carbohydrate were forced to use insulin when carbohydrate was increased. Since these were presumably mild cases, it is not surprising that the average insulin dosage was lower in the high carbohydrate series. It is quite as impossible to use the evidence to prove the advantages of low carbohydrate. From such data nothing can be proved, yet they are cited in every journal in behalf of one regime or another.

In the same article the author presents figures comparing units of insulin required per day per gram of carbohydrate. Now this I protest is an entirely meaningless ratio unless every other variant of life is maintained constant. The manner in which insulin and carbohydrate are distributed throughout the twenty-four hours is of quite as much, probably more, importance than the amounts of these substances that are given.

Ivar Bang, at the beginning of this century, in his historic studies of the blood sugar and carbohydrate metabolism, found that starvation diminished tolerance for carbohydrate. This observation, now so incontrovertibly established, is strangely at variance with starvation cures which have had, at times, such wide support. After the administration of glucose to an animal or a human being who has been subjected to a preliminary period of starvation the blood sugar rises excessively and remains elevated for an unusually long time. Sugar may appear in the urine. Investigations of the respiratory metabolism of such subjects have shown that they burn little or none of the sugar that is given to them. That portion of the sugar which is not excreted in the urine is apparently used to replenish the glycogen stores of the liver. If, after a reasonable interval, further sugar is administered it will be utilized in the normal manner. There are all grades of this condition which Bang termed "starvation diabetes." The most familiar is seen

in the two dose tolerance test, which has recently been advocated for diagnostic purposes by Altshuler and others. If, 30 to 60 minutes after the administration of a dose of glucose—that is, when hyperglycemia has reached or passed its peak, a second dose of glucose is given, the blood sugar does not rise as far as it did after the first dose; in fact it may hardly rise at all, although the rate of absorption of glucose may have increased.

From analyses of experiments of this kind and others which time will not permit me to mention, it seems reasonably certain that the phenomenon of "starvation diabetes" is connected with depletion of the glycogen stores of the body. As soon as these become exhausted, apparently, the ability to burn carbohydrate diminishes or vanishes. It would, therefore, seem the part of wisdom to prevent wastage of liver glycogen in diabetes. Another cogent reason for conserving glycogen stores is the prevention of ketosis. Despite our long cherished conceptions we have suddenly and rather rudely been awakened to the fact that "fat does not burn in the flame of carbohydrate." Acetone and other ketone bodies accumulate in the blood and appear in the urine not when the organism fails to burn carbohydrate, but when the glycogen stores in the liver are depleted. Ketosis in the depancreatized dog can be diminished or abolished by administration of enough carbohydrate, although the animal is completely unable to burn any of the sugar which it receives. Need I point out that under these circumstances, since the dog can burn none of the extra sugar, glycosuria increases as ketonuria diminishes.

The problem of preventing glycogen wastage in the diabetic presents peculiar difficulties because his glycogen stores are in such a precarious position all the time. I do not mean by this that the essential defect of the diabetic lies in the inability to produce or retain glycogen. However, because of his inability to utilize sugar the liver pours out its glycogen as glucose into the blood in an apparently vain effort by the force of mass action to effect some carbohydrate combustion in spite of the metabolic defect. This process continues during starvation when there is no exogenous source of sugar to replenish the glycogen. The only practicable therapeutic procedures, reduction of carbohydrate intake and intermittent injections of insulin, necessary as they may be for the bodily economy as a whole, do not favor glycogen formation and storage. All of

you can understand quite clearly how restriction of diet will further glycogen destruction. It is implicit in the experiment I cited above in which the depancreatized dog built up glycogen stores and excreted less ketone bodies, when it was given large amounts of carbohydrate, even though the latter ultimately appeared quantitatively as glucose in the urine. It may not be as immediately obvious to all of you why insulin should further glycogen depletion; therefore I should like to spend a moment on the subject. The essential action of insulin seems to be to accelerate the oxidation of carbohydrate by the tissues. If an animal is given insulin without extra sugar the carbohydrate (chiefly glycogen) in the tissues is burned at an abnormal rate. To meet the demand for accelerated combustion the liver glycogen is broken down and poured into the blood as glucose. Even in a normal animal glycogen depletion can be pushed so far under the influence of insulin that the animal will in the subsequent period have definite ketonuria. In treating the diabetic intermittently with insulin we are always tending to drive him from one state of glycogen depletion into another—and that means from one state of carbohydrate intolerance to another. The severe diabetic wakes up in the morning with the glycogen depletion of starvation, heightened by his incapacity to burn glucose. Under these deplorable conditions he is peculiarly resistant to the effects of insulin and quite unable to burn the carbohydrate he receives for breakfast. To overcome this incapacity he requires an enormous dose of insulin, sometimes at a long interval before breakfast. This enormous dose is necessary to take care of the burst of hyperglycemia that accompanies breakfast; but its effects may last far longer, well through the morning and into the afternoon. Throughout all this time a limited amount of sugar is being burned at an accelerated rate. Even if no symptoms develop the blood sugar of some of these patients remains at hypoglycemic levels for the greater part of the day. By supper time, if the urine is collected in frequent fractional specimens, small amounts of acetone may be found. The introduction of lunch may have a negligible effect upon the blood sugar and seldom causes glycosuria. Despite all these evidences that sugar has been burned with great ease, when supper comes around the subject may be almost as resistant to insulin as he was in the morning. Again a large dose must be given to take care of the evening meal. Again, if this dose

is made large enough the blood sugar will fall excessively later in the evening, perhaps causing symptoms of shock. Even if these do not appear, combustion of carbohydrate must be so accelerated that glycogen depletion will ensue, the more so, because this time there is no life-saving lunch, but only a long fast. Is it surprising, then, that somewhere in the small hours of the morning the diabetes grows worse, blood sugar mounts, ketonuria appears, and breakfast finds the patient again in an aggravated state of carbohydrate intolerance and insulin resistance. This is a severe case of diabetes, but the difference between this case and the mild one seems in this respect to be one of degree rather than kind.

You may rightly question the assurance with which I ascribe these phenomena to carbohydrate starvation and glycogen depletion. I confess were time available I should like to qualify this assurance. Suffice it for the moment if I say that the precarious nature of the glycogen stores of the diabetic and the fact that he is peculiarly subject to, and the victim of, carbohydrate starvation and glycogen depletion are indisputable, as is the fact that the usual therapeutic measures must often aggravate these defects. If these functional disturbances do not contribute to carbohydrate intolerance we can only believe that the diabetic is provided with a means for circumventing the effects of starvation that the normal person does not possess, a most unlikely conjunction of providence. Undoubtedly other factors contribute to the characteristics which so baffle the clinician. The fact that the nature of these latter is obscure is no reason for neglecting established physiological truth.

How to circumvent these intermittent deglycogenating effects has now become one of the major objectives of diabetic therapy. It is in a sense to combat this that protamine insulin and a variety of similar products have been introduced. Their aim is to prolong and to moderate the action of insulin. Without decrying their value in any respect in the province in which they have proved so beneficent, I should like to point out that prolongation of the action of insulin is not the only desideratum. The diabetic I described above presented a peculiar anomaly. Ordinary old fashioned insulin in the normal person or the diabetic dog has an evanescent effect, producing a maximum hypoglycemia in the course of 30 to 60 minutes, which passes off after a relatively short interval. But, in this patient the

insulin had its maximum effect after three or four hours and the hypoglycemia continued for 9 or 10 hours. It is not possible, until some method is devised by which blood can be assayed for insulin, to say that the insulin which was administered remained in the blood throughout this period. One can only say that the combustion of carbohydrate which it initiated persisted for this length of time. In a similar manner the effects of a dose given at 5:30 P. M., before supper, may still be manifest in hypoglycemia at 2 or 4 A. M. the next morning. This difficulty has led many to the use of multiple doses of insulin, a solution of the problem which is, to say the least, inconvenient to the patient, and often unsatisfactory. It is our experience that by proper arrangement of diet and insulin only an exceptional patient should require more than two doses of insulin except when the diabetes has been aggravated by some complicating condition.

The mid-day dose is obviously the most superfluous. If the morning dose is sufficiently large to counteract the effects of the morning intolerance, the blood sugar is usually lowest in the latter part of the morning. It is our impression that extra carbohydrate can be given to advantage in the middle of the morning and will not necessitate any additional insulin. The noon-day meal, also, can often be increased with the same economy of insulin. If insulin is given before the mid-day meal the blood sugar may be so low before the evening meal that it is impossible at this time to give enough insulin to carry the patient over night. The time when a third dose is needed most in the severe cases is late at night or in the early hours of the morning. Some physicians order insulin at these times. To me it seems a cruel measure, to be practised only if every other expedient fails. I remember an anxious, haggard mother who lost 14 pounds in as many days because she tried to give her son insulin at 2 o'clock each morning. The introduction of fruit or some other form of carbohydrate before bed may offer a happier way of life. This evening meal has become with us more and more a matter of routine, especially with the more severe or unstable diabetics. Again, let me add that such feedings do not seem to demand extra insulin. In fact—but this must be said with some reserve—one gains the impression that in some persons they demand less insulin. Frequent meals, therefore, may be quite as effective as frequent doses of insulin. Need I say they provide a far more comfortable way of life.

Much of the benefit derived from these intermediate feedings undoubtedly comes from the fact that they are given at the times when hypoglycemic shock is most likely to occur and, therefore, permit more liberal doses of insulin before breakfast and the evening meal. There is physiological reason, however, for believing that their good effects derive to some extent also from the fact that they provide a more continuous supply of exogenous carbohydrates and thus prevent intermittent depletion of glycogen stores. That the distribution of carbohydrate is not a matter of indifference can be demonstrated in some patients who show glycosuria regularly immediately after breakfast or supper or both, but will not tolerate further insulin. If a part of the carbohydrate from the offending meal is given an hour or two later, the glycosuria may disappear without any change of insulin dosage.

Physiological support for these procedures are found in certain experiments made by Ellis. He found that by administration of frequent small doses of carbohydrate and insulin severe diabetics could be made to utilize enormous amounts of carbohydrate with very little insulin.

Other procedures which are useful in combating the effects of the overnight rise of blood sugar are: first, to diminish the length of the fasting period by giving the evening meal late; second, to give the morning insulin 45 or even 60 minutes, rather than 20 to 30 minutes, before breakfast.

One other variant which must be given careful consideration is exercise. In the normal subject physical activity accelerates the combustion of carbohydrates. It has a comparable effect upon the diabetic who has the capacity to burn carbohydrate and has carbohydrate available for combustion. It therefore heightens the effect of insulin. I often question the advisability of admitting diabetics, especially young diabetics, to the hospital for regulation of diet or insulin. Usually the inactivity of the hospital regime increases glycosuria greatly. The patient finally regulated for hospital life requires radical reduction of insulin when he resumes normal activities. The hospital may be a useful place for preliminary education of the diabetic and is ideal for treatment of complications or emergencies; but it is not the place for adjustment of a mode of life. Advantage may be taken of the effects of exercise. I do not mean that patients should be made to exercise merely to eliminate glycosuria; the additional caloric demands of exercise may well waste



more fuel than the small amount saved by the elimination of glycosuria. Food may, however, be distributed in accordance with the daily routine of physical activity. It is notorious that children who have subsisted without glycosuria on small doses of insulin during summer vacation need larger amounts as soon as they return to school in the fall. Part of this I should attribute to restriction of physical activity. What exercise they do have is chiefly in the afternoon. Many of them can happily eat without detriment and without extra insulin when they return from school. Unfortunately too many, instead of being given some food to satisfy a true physiological craving at this time, are treated like young criminals if they succumb to temptation. I am strongly of the opinion that in children, at least, infractions of diet should be considered as challenges, not sins; when diets are not emotionally satisfactory, they may be physiologically inadequate. Even if they are adequate in quantity, they may be ineptly distributed.

It follows from what I have said of exercise alone that diabetes is not a static thing. It may have its stable periods, but it is seldom stationary for long, and treatment must be flexible as the disease. I marvel at those who can classify patients as insulin-resistant and insulin-sensitive, as unstable or stable. To be sure there are extreme cases that may retain such characteristics indefinitely; but the great proportion are insulin-resistant at one moment, insulin-sensitive at the next; unstable now, stable tonight or tomorrow. These variations occur in the course of a single day or operate over weeks or months. And treatment must keep pace with them. Adequate explanations for some of the variations can be found in changes of the daily routine, emotional disturbances or intercurrent complications, infections or otherwise. Some remain inexplicable even after the most searching examination. During periods of adjustment or while patients are in the hospital it is our custom to have urines examined 4 times a day: before each meal and before going to bed. Each of these urines has its own significance in the regulation of diet and insulin. When a temporarily satisfactory regime has been arranged the patient is instructed to examine the urine at odd intervals with especial emphasis upon the specimens voided before lunch and in the evening. When glycosuria appears more frequent tests are made for a time and insulin is readjusted. After this tests are again made at longer intervals. Throughout we are endeavoring to give the diet which is most adapted

to the individual patient, and which imposes the least limitation upon him, with the smallest possible amount of insulin and the smallest possible amount of doses of insulin.

Repeatedly I am asked what I do about the blood sugar. My answer is that it is a matter of complete indifference to me whether the blood sugar is normal at one time of day or another. It was once customary to study blood sugars before breakfast. Those who believed most firmly in blood sugar soon learned that fasting blood sugar could not be brought to the normal level in severe diabetics without serious hypoglycemic shocks at night or after breakfast. Some clinics have, therefore, adopted the practice of determining blood sugars later in the morning. This is usually the lowest point of the daily blood sugar curve. Therefore the physician can derive the greatest satisfaction if he chooses to analyze the blood at this time. However, it may be normal or low in the middle of the morning and extremely high most of the day. By and large, if the urine is free from sugar, it may be assumed that the blood sugar falls to or below normal limits at intervals during the twenty-four hours. Determinations of blood sugar are much more valuable as means of solving problems in the regulation of the diabetic or to detect hypoglycemia. For these purposes the blood may be collected when it seems most advantageous for the individual case.

#### THE USE AND ABUSE OF INSULIN

PAUL H. LAVIETES, M.D.

ASSISTANT PROFESSOR OF MEDICINE  
YALE UNIVERSITY

Dr. Peters has indicated that no rigid rules can be accepted for the treatment of diabetes. I shall certainly not attempt to foist upon you any rule-of-thumb plan for the use of insulin. Variations in the nature of the disease and of the individual conspire with the many extraneous factors which may influence the utilization of carbohydrate to make of each case a problem which may tax to the utmost the ingenuity and resourcefulness of the physician. There may be several equally good ways to solve the problem and there may be more than one way to arrive at the same solution. Certain basic principles may be propounded, however, on the basis of the best available knowledge not only of the metab-

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olism of carbohydrate but also of the physiology of man in its broadest sense and with consideration of his relation to society. If one grants that hyperglycemia *per se* carries no serious consequences, the problem of treatment of diabetes becomes one of supplying adequate nutrition without interfering any more than necessary with the individual's way of life. Any considerable glycosuria must of course be prevented because it interferes with nutrition and because it leads to dehydration and local irritative phenomena. Selection of an adequate diet requires more than routine consideration. It must be sufficient for the nutritional requirements of the patient with due regard to his usual expenditure of energy and need for growth, to the demands of any complicating disease and last but not least to the inclinations of the patient to the extent that the taking of food does not degenerate into a completely uninteresting duty. If the use of insulin becomes necessary to control glycosuria, care must be exercised to use as few doses and as small ones as will prevent glycosuria without producing hypoglycemia at any time of the day. The main burden of my address will be to show by examples from our cases some of the problems which arise in applying these principles in practice. If some of the points prove more obvious to you than they did to me, I hope that you will forgive me.

Needless to say insulin is abused if it is not controlled by frequent urinalysis. Our aim is to prevent glycosuria throughout the 24 hours of the day, yet, except in the mild cases requiring no insulin, analysis of the 24 hour urine specimen yields little useful information. One patient with diabetes of 25 years standing had taken 15 units of insulin before breakfast and supper each day for the past 10 years without any quantitative restriction of diet. Three weeks before we saw him in 1935 he called a physician to treat a traumatized toe. The physician, finding glycosuria, prescribed increasing doses of insulin on the basis of tests of the 24 hour specimens. On April 11, 1935, he gave 35 units before breakfast and before supper. At 5 A. M. the next day the physician was called because the patient was acting queerly, and finding him drowsy, the physician gave 30 units of insulin with 20 grams of carbohydrate. Since the patient was no better at 9 A. M. he received 20 units more. When he arrived in the hospital at 10:30 A. M. he was deeply comatose but was not dehydrated or overventilating. Since insulin shock was suspected, blood was drawn

for analysis and glucose was given intravenously without awaiting the results. The patient failed to rouse after 25 gms. of glucose was given but began to respond while a second ampule was being given. The blood sugar was found to be less than 10 mg. per cent and the carbon dioxide content of the serum was perfectly normal. It is apparent that in this patient the presence of glucose in the 24 hour specimen was not an adequate criterion for increasing the insulin dose. A much better estimate of the requirement could have been made by testing the urine several times during the day and increasing the morning or evening dose as indicated.

Similar difficulties arise when the level of the blood sugar at any time of the day becomes a criterion of insulin dosage. To cite one example, a patient who was being regulated on the basis of blood sugar tests done two mornings a week because she supposedly had a high renal threshold for glucose was having daily hypoglycemic reactions in mid-afternoon when taking 25 units before breakfast, 25 before lunch and 10 before supper. When insulin was omitted at noon and the supper dose increased to 15 units, glycosuria was entirely eliminated and hypoglycemic reactions were avoided. The well being of the patient was improved greatly by the change of regime.

Dr. Peters has already described a case in which the use of insulin was avoided merely by a redistribution of the diet. In cases requiring insulin a similar redistribution may result in an economy of insulin. In the severe cases, in which the overnight rise in blood sugar makes it difficult to avoid glycosuria after breakfast, it may prove a very useful expedient to reduce the breakfast sharply, thus diminishing the load at the time when tolerance for carbohydrate is at its lowest, and to give the remainder of the breakfast in the middle of the morning when carbohydrate metabolism has reached a high pitch. Thus both the glycosuria after breakfast and the hypoglycemic reactions later in the morning are avoided. Such a procedure will obviously have no effect on glycosuria before breakfast. In several of our cases we have been able to demonstrate that while the overnight specimen voided at 7 A. M. contains no sugar, a specimen voided just before breakfast at 8 A. M. shows complete reduction of Benedict's solution. In this case the simple expedient of giving the insulin injection at 7 or 7:15 A. M. may suffice. More often it is necessary to increase the night insulin dose to minimize the

overnight rise, which is responsible for the glycosuria. This is more likely to be successful if one, or occasionally even two, small extra feedings are given between supper and bedtime. The following case illustrates some of the difficulties arising on account of the overnight rise. A patient with severe diabetes of several years duration, taking 90 units of insulin an hour before breakfast and 50 units a half hour before supper showed profuse glycosuria before and after breakfast but was aglycosuric during the remainder of the day. It was impossible to increase the night dose further because there had been frequent shocks at 11:30 P. M. in spite of a 9 P. M. feeding. There were no recognized shocks earlier in the day. Determination of the blood sugar before supper showed it to be within normal limits. Giving 50 units at this time provoked hypoglycemia later in the evening without preventing the overnight rise, the morning blood sugar exceeding 300 mg. per cent. The shock and the overnight rise were both successfully combatted by omitting the supper insulin entirely and giving instead 30 units of insulin with 20 gms. of carbohydrate at 11:30 P. M. The same result was obtained later by reducing the morning dose to 40 units and giving 20 units before supper and 15 units before a 9 P. M. feeding.

Another patient brings out the point even more sharply. On 65 units before breakfast and 35 before supper the tests were clear at 9 P. M. and 7 A. M. but showed complete reduction at 11 A. M. and 4 P. M., and the patient shocked just after supper. At first glance it seemed that the morning dose was insufficient to clear the after breakfast and after lunch specimens and that the night dose was too large. The fact that the shock appeared immediately after supper, however, led to the suspicion that the morning dose was responsible to a large extent for the evening hypoglycemia. This was corroborated and after breakfast became absent or slight and 331 mg. before breakfast, 96 before lunch and 49 before the supper insulin was given. With reduction of the morning dose to 40 units and the administration of 10 units before supper and 10 more before the 9 p. m. feeding, glycosuria before and after breakfast became absent or slight and hypoglycemic reactions were avoided.

That carbohydrate tolerance is not a stationary thing is often not sufficiently appreciated. Insulin requirements commonly rise during infections or emotional upsets and at times with no apparent

explanation. Exercise, in some patients, has a favorable influence on tolerance. Frequently patients who remain aglycosuric without difficulty during the week complain that they always show sugar on Sunday though they adhere strictly to their diets. One of our young diabetics with a scientific turn of mind found that he could prevent this merely by taking a walk after breakfast on Sunday. In his case at least, decreased activity was the cause of the Sunday glycosuria. Neglect of the fact that exercise may increase tolerance for carbohydrate may have serious consequences. When one of our patients who was well regulated in the hospital was allowed out of bed for the first day she felt a little nervous just before lunch and paced the floor in an attempt to walk the jitters off. The exercise unfortunately had the reverse effect, transforming a mild hypoglycemic reaction into a severe one with convulsions. Another patient whose tolerance for carbohydrate has always been extremely sensitive on the one hand to emotional stress and on the other to exercise and who found it impossible by any regime to keep consistently aglycosuric had the occasion to be regulated in another hospital following a gastrointestinal upset incurred while the patient was away on her vacation. The glycosuria was nicely controlled on something over twice her usual dose while her only exercise consisted in taking a few steps about the ward. On the first day removed from the hospital, after a short walk, she had such a severe reaction that she took two oranges from a nearby fruit stand and ate them skin and all to save the time necessary to peel them. In some patients in whom exercise is known to improve the tolerance considerably, foresight may prevent unpleasant shocks. Thus a dancing instructor under our care avoided trouble by reducing her insulin dose on the nights when she worked, often taking ice cream as well on those occasions without provoking glycosuria.

When protamine insulin, with its prolonged gentle action, was first announced, it was hailed far and wide as the perfect answer to the problem of controlling the wide fluctuations of blood sugar during the day, and the overnight rise. The need for multiple doses of insulin was to be a thing of the past. After further experience, however, it became clear that protamine insulin was not a panacea; that its use was attended by difficulties different from, but often as great as, those with regular insulin. The patient who was difficult to

treat with regular insulin usually remains difficult to treat with protamine. Attempts to treat severe diabetes with a single daily injection of protamine insulin alone have been successful in only a small proportion of the cases. Protamine given at almost any time of the day in sufficient dose is almost uniformly successful in rendering the overnight, or at least the before breakfast, specimens sugar-free; it rarely, however, acts with sufficient force to prevent glycosuria after meals. For this a supplementary injection of regular insulin must usually be given before breakfast. This necessitates two injections and detracts somewhat from the appeal of the new discovery. It, however, allows all the insulin to be given in the morning, thus allowing the patient more freedom at supper time. There is in addition some indication that the total insulin requirement is smaller when protamine is employed. Insulin reactions have not been eliminated by the introduction of protamine; the time at which they occur most frequently has merely been changed to the hours before breakfast, and there is still the same susceptibility to shocks later in the day when protamine must be supplemented by regular insulin. Furthermore the shock after the new insulin may take on a more serious aspect. Patients who are warned of impending shock from regular insulin in sufficient time to avert serious reactions find that the first evidences of shock after protamine insulin are the potentially more serious ones of mental confusion, convulsions or loss of consciousness. Dr. Allen has reported a case of a taxi driver in whom this became an extremely important matter. His diabetes had always been difficult to control with regular insulin and there had been frequent mild shocks which were readily aborted with sugar thus allowing him to continue his occupation. When he found that he was unable to recognize the reactions after protamine in time to prevent them, he quickly abandoned protamine.

We have gradually adopted the practice of giving protamine and regular insulin in separate injections before breakfast, using of protamine the smallest dose which will clear the before breakfast specimen and of the regular the smallest dose which will prevent glycosuria after meals. This is much the same plan which is used by the majority of clinicians both in this country and abroad. We have selected for treatment with protamine insulin only those patients who after a long period of treatment with the old insulin still require more than one

injection a day. This serves to give us information by which we hope to be able eventually to evaluate the therapy with some accuracy. To sum up our results to date in a very unprecise way, I may say that while we have very few cases in which an injection of protamine insulin alone has proved a satisfactory substitute for two of regular insulin, there are very few in which satisfactory regulation has not been gained with a combination of protamine and regular, usually with a smaller total dose than was required previously. This is in accord with the experience of others.

Rather than attempting to review our cases in any comprehensive manner, I will content myself with presenting a few experiences which proved to supply information useful in the treatment of cases subsequently. I have already indicated that hypoglycemic reactions just before breakfast, or even earlier, occur frequently in patients taking the new insulin. One of our early experiences with such shocks is of interest in several respects. A student previously well regulated for a year on a hundred units of regular insulin given in two injections was changed to 70 units of protamine, all given before breakfast. When we first saw him he was aglycosuric most of the day, but had occasional mild shocks as soon as he set out to prepare his insulin in the morning. Extra carbohydrate at bedtime failed to prevent the reactions; reduction of the dose by even 2 units resulted in profuse glycosuria through the day. It seemed apparent that even a little activity before breakfast was sufficient to make manifest the symptoms of hypoglycemia. By the simple expedient of having the patient take his breakfast fruit immediately on arising, the reactions have been entirely eliminated without provoking glycosuria. I have found it a useful measure to take in all patients using protamine insulin. This serves the double purpose of guarding against hypoglycemic reactions and stimulating carbohydrate metabolism. This case brings out another point. In order to prevent glycosuria after meals with protamine insulin alone it was necessary to give a dose which probably produced prolonged hypoglycemia during the night, a process which must be looked at with misgivings as far as its influence on carbohydrate metabolism is concerned. It would seem advantageous to attempt to avoid this hypoglycemic phase by reducing the dose of protamine insulin and supplementing it with regular insulin to control glycosuria after meals. Freedom



from glycosuria was attained in this case with 70 units of protamine where formerly 100 units of regular was necessary. It may be that with a combination of the two types of insulin an even greater economy can be effected.

Another patient who spent a year and a half in the hospital with hemiplegia and ephasia secondary to a cerebral vascular accident gave us the opportunity to try the two types of insulin alternately in order to derive information concerning the economy effected by protamine. Each time the insulin requirement was higher with regular insulin than with protamine, the average values being 60 to 70 units with the former and only 40 to 50 units with the latter. Economy of this degree has been noted in many reports from the literature.

In our earlier trials with protamine in patients with troublesome overnight rises we gave regular insulin in the morning and protamine at night as recommended by the Danish investigators. The results were disappointing. Later we had a case which throws some light on the question of the optimum time for administration of protamine insulin. On a single injection of 40 units of protamine alone given before breakfast, there was profuse glycosuria in all but the before breakfast specimen which was clear, and there was a shock during the night. When the insulin was given before lunch, tests were clear only before and after breakfast, and again there were shocks at 2 A. M. and 4 A. M.; when the same dose was given before supper specimens were again clear only before and after breakfast; when it was given before a late evening feeding the urine was free from sugar only before breakfast. The time of administration of protamine insulin was apparently a matter of complete indifference in this patient. Subsequently with 30 units of protamine and 6 of regular, both given before breakfast, she remained sugar-free except in the after supper specimen; there were no shocks providing a small feeding was taken between breakfast and lunch. The effectiveness of this small dose of regular insulin in this case in preventing glycosuria after breakfast and lunch, and even in promoting hypoglycemia before lunch is an indication that the protamine has left the morning tolerance (or at least the sensitivity to insulin) good. It is possible that with a smaller dose of protamine, allowing a somewhat higher blood sugar before breakfast, a dose of regular insulin large enough to control all the glycosuria after meals could be em-

ployed without precipitating hypoglycemia during the day. In most cases where we have tried to lower the protamine and increase the regular to minimize the tendency to hypoglycemia during the night, however, control of the glycosuria has not been as satisfactory as when small doses of regular and relatively large ones of protamine are used.

It might be well to mention some more or less complete failures with protamine. A boy with a remarkably labile tolerance for carbohydrate was finally rather well regulated with regular insulin, using 40 units an hour before breakfast and 30 a half hour before supper; that is, with this dose he had no trouble with hypoglycemic reactions and the urine was free from sugar more often than not; it was impossible to keep him aglycosuric at all times. When 60 to 70 units of protamine were given before breakfast he had profuse constant glycosuria until the fifth day when there was a very severe insulin reaction at 7 A. M. at the same time as the overnight specimen first became sugar-free. Regular insulin was again employed at this point. Several months later, while the patient was on the pediatric service on a diet containing much more carbohydrate the same sequence of events transpired, the shock at 7 A. M. being even more severe. Then, on a regime using 50 units of regular insulin before breakfast and 35 units of protamine before supper, there was constant glycosuria with a shock before lunch, and the situation was not altered by giving the protamine in the morning, at the same time as the regular. Finally the pediatricians gave the boy 40 units of each type of insulin before breakfast, on which there were no shocks and no entirely clear urine tests in the last two months of hospitalization. His weight, however, continued to progress satisfactorily upwards, a fact which was certainly in large part due to the treatment of an associated steatorrhea. One can hardly claim that the protamine succeeded in doing anything in this case which could not be done with regular. We have several other patients with instability of the emotions and of the vasomotor mechanisms as well as of the carbohydrate metabolism in whom protamine has not proved the complete answer. For example one middle aged lady with mild hyperthyroidism who is extremely sensitive to insulin and whose requirement is further extremely sensitive to exercise and emotional upsets constantly vacillated between glycosuria and hypoglycemia while taking 15 units of regular insulin before breakfast and

10 before supper. When protamine insulin and various combinations of protamine and regular were tried the situation remained entirely unchanged. The patient felt perfectly well and maintained her weight while remaining glycosuric on protamine it is true, but this is equally true of her course on regular insulin.

Occasionally, when it seems impossible to control glycosuria by a single dose of protamine insulin alone, this may become possible merely by a redistribution of the diet, a fact which was first pointed out to me forcefully by one of our patients. For over a year, this man, by taking 35 units of regular insulin before breakfast and 25 units before supper and adhering strictly to a diet containing 185 grams of carbohydrate, had remained aglycosuric except for occasional after breakfast tests and had had no shocks. The carbohydrate of the diet was distributed into three regular meals of 35, 65 and 60 grams respectively and two extra feedings of 10 grams at 10 A. M. and 15 grams at bedtime. When he was given 60 units of protamine before breakfast, there was at first profuse glycosuria, unattended, however, by weight loss, polyuria or acetoneuria. As the tests began to clear the dose was gradually decreased to 50 units. At no time on this regime was the urine clear for more than 24 hours at a time. Glycosuria was the rule rather than the exception; yet there were two severe hypoglycemic reactions, the first producing convulsive twitchings at 5 A. M. followed by mental clouding which was not fully dissipated for 3 hours, although 40 grams of carbohydrate was given. On the second occasion he was in a confused state on awakening and proceeded to test his urine incorrectly. When his wife corrected him, he slapped her for the first time in a long married life and so surprised her that she dropped the insulin syringe that she was holding. With the administration of some orange juice Mr. Hyde soon became Dr. Jekyll. At this time we suggested that he try combining a smaller dose of protamine with a small supplement of regular insulin but he had different ideas. By reducing the intake of carbohydrate in the early part of the day and adding to the bedtime feeding he was able to keep constantly sugar-free with the exception of a rare 1+ test, usually before lunch, and to avoid hypoglycemic reactions entirely. He took his breakfast fruit immediately on arising as an added precaution against shocks at that time. The reduction of diet in the early part of the day was merely at the

expense of the 10 A. M. feeding of 10 gms. of carbohydrate which had been necessary to avoid hypoglycemic reactions after regular insulin and 5 grams of carbohydrate removed from lunch. Not content with this fine demonstration that redistribution of the diet could effect miraculous results, he proceeded to control the experiment by again adding 10 grams of carbohydrate at 10 A. M. or at lunch. The result was profuse glycosuria through the afternoon and evening.

I was able to utilize the lesson taught me by this patient to good effect in the following case. A young girl came to see me because a single dose of 30 units of protamine given before breakfast allowed profuse glycosuria after lunch and after supper while producing severe shocks at 3 to 6 A. M. almost every day. Repeated blood sugars taken at noon by her physician showed only 150 to 180 mg. per cent, arterial blood being used. The diet allowed 22 grams of carbohydrate at 10 A. M., 4 P. M. and 9 P. M. in addition to the regular meals. The patient complained that the feedings came so close together that she was not always successful in taking the full prescribed diet, and evinced a desire to have less food early in the day with more liberal allowances at supper and bedtime. This seemed to be an ideal situation to test the reduplicability of the last patient's experience. She was advised to take her fruit immediately upon arising, to omit the 10 A. M. and 4 P. M. feedings entirely, to subtract 10 grams of carbohydrate from lunch and to add 15 grams to supper and 25 grams to the night extra feeding. The result was complete freedom from glycosuria and insulin shocks with the same insulin and total intake of carbohydrate as she had used to such poor advantage earlier. At the same time the new arrangement of the diet was more palatable to the patient.

In summary, it may be said that any prescribed insulin dose can only be a first approximation. Not only the size of the doses and time of administration but also the distribution of the diet must be varied to meet the special problem presented by each patient. This is no less true with protamine than with regular insulin. Protamine insulin is certainly a valuable adjunct to therapy but its use presents certain new difficulties, examples of which have been presented. Regardless of the time of administration of protamine insulin, the maximum tendency to hypoglycemia is during the night or before breakfast.

**THE RHODE ISLAND MEDICAL JOURNAL**

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ALBERT H. MILLER, M.D., *Editor*  
28 Everett Avenue, Providence, R. I.

CREIGHTON W. SKELTON, M.D., *Business Manager*

*Associate Editors*

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GEORGE L. YOUNG, M.D.

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**RHODE ISLAND'S REACTION**

At the recent special meeting of the Rhode Island Medical Society, which was called to consider certain principles and proposals which had been advanced for the consideration of the profession, certain things were accomplished. Although the report of the house of delegates "disapproving these principles and proposals in their present form" was passed without a dissenting vote, the discussion disclosed the fact that in the minds of those who sponsored these suggestions they represented by no means a move favoring governmental control of medical practice or a first step towards socialized or state medicine but rather on the contrary an earnest and carefully considered effort to forestall precipitate and harmful governmental action. It is the belief of this JOURNAL that in disapproving these suggestions the Society has acted correctly; first, because it is evident that they are easily capable of misinterpretation by the average reader, and second, that they have been so grossly misinterpreted that an appearance of a marked division of opinion in the ranks of the profession has been created. The unfortunate publicity that has occurred is to be deplored. At the time when these suggestions were circulated and signed the threat of governmental interference seemed much more ominous than it does at present. The discussion of these matters must, however, have been of benefit in stimulating an active interest in the status of medical practice and has doubtless created a condition of awareness on the part of the profession of this state that will bring about prompt and critical judgment on issues of this sort as they arise and become urgent. One lesson seems clear, that further discussion of such issues and an attempt at agreement on a positive

program concerning important phases of national health and medical practice should engage the attention of this and other constituent societies of the American Medical Association in the immediate future, an agreement which must be reached by clear thinking without the clouds of prejudice and emotion which have been aroused by these early suggestions.

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**SULFANILAMIDE**

The medical profession in this State has watched the progress of the new drug sulfanilamide with a great deal of interest. With the background of past experience, we have seen drugs put forward as panaceas, have heard them heralded in the literature of drug houses as well as in that of medical journals, and have watched them sink into the oblivion of disrepute. So when sulfanilamide appeared, it is no wonder that we were skeptical. However, this time the story appeared to be different. The medical literature showed better controlled series of cases; the results were in some instances dramatic; and, finally, we ourselves have tried it out on cases with equally dramatic effect. The drug, therefore, had been well accepted as specific for the beta-hemolytic streptococcus, when new uses for it appeared. By last summer, it was known to be of benefit against not only streptococcal infections, but also against those caused by the meningococcus and gonococcus. But with the mention of the last organism, the conservative physician was instantly able to see the handwriting on the wall; indiscriminate use by the physician, let alone the drug store "doctor," has followed. And now the whirlwind is arriving.

In the August 14th number of the Journal of the American Medical Association is a little note reporting fatalities from the use of sulfanilamide. Among these are two cases of agranulocytosis. In the September 25th number of the same journal are eleven contributions on sulfanilamide, of which nine report the occurrence of toxic manifestations.

Among the conditions produced are hemolytic anemia, optic neuritis, and various skin rashes. Peculiarly enough the drug seems to be a photosensitizing agent of the skin, a point that should not be forgotten. Within the past few weeks the newspapers of the country have been full of cases of poisoning from an elixir of sulfanilamide. While the drug itself has been absolved of blame, the situa-

tion should bring home the lesson that, in combination with other drugs, unpleasant results may ensue.

There are two other journals that report on this drug. In the August number of the *Journal of Pediatrics* is a symposium on therapy; and lastly, in the October issue of the *Annals of Internal Medicine* is a brilliant article on the clinical use of sulfanilamide.

The serious results of indiscriminate use of this drug compel every physician to endeavor to learn all he can about it before he attempts to use it in his practice. Sulfanilamide is not going to limbo. It has a place in the pharmacopoeia and will fill that place well. If patients are going to be cured through its use, and not killed, we must know all there is to know concerning it.

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## RHODE ISLAND MEDICAL SOCIETY

### Special Meeting of the House of Delegates

A special meeting of the House of Delegates of the Rhode Island Medical Society was held at the Medical Library on Wednesday, November 24, 1937, and was called to order by the President, Dr. Walter C. Rocheleau, at 4 P. M. The Secretary, stating that the meeting was called particularly to consider the matter of socialized medicine, reported on the Conference of Secretaries and Editors held in Chicago on November 19 and 20, with special reference to the Principles and Proposals of the Committee of Physicians, which were not approved by the House of Delegates of the American Medical Association but were referred to the Board of Trustees.

Dr. Jesse E. Mowry made the motion, seconded by Dr. Champlin, that this body support the stand that the House of Delegates of the American Medical Association had taken on socialized medicine. Dr. Mowry recognized the fact that the House of Delegates of the American Medical Association objects to socialized medicine and while he himself hates socialized medicine he is ready to listen to the other side of the question, realizing that we are living in a new era, that socialized medicine in a way is already here, and that the medical profession should have something to say about what form it will take. The subject was discussed by Doctors Skelton, Mowry, Hammond, Burgess, Wm. S.

Streker, Donley, Wells, Charles L. Farrell, Abbate, Champlin, MacLeod, Baldrige, Bray, P. P. Chase, Collom, Jesse P. Eddy and Earl Kelly.

Dr. Burgess felt that if these principles and proposals were studied and explained the impression would be different. He stated that there are other proposals which are superior and quoted an article from the last number of the *New England Journal of Medicine*.

Dr. Hammond moved as an amendment to the motion before the House that this body request the Board of Trustees of the American Medical Association to formulate a plan to be submitted to the House of Delegates. Dr. Wm. S. Streker read an article from a recent issue of *The Journal of the American Medical Association* under Current Comments, on proposals, principles and petitions. Dr. Charles L. Farrell read a petition from the Caduceus Club of Pawtucket, questioning the stand of the Committee of Physicians on socialized medicine.

Dr. Jesse P. Eddy moved as an amendment to the motion, that each District Society call a meeting and let each member of each District Society submit his opinion on the question in writing. Dr. Champlin stated that the Washington County Medical Society is against socialized medicine. Dr. MacLeod stated that the Newport Medical Society is definitely opposed to socialized medicine. Dr. Abbate stated that Kent Medical Society objects to socialized medicine. Speaking for the Standing Committee of the Providence Medical Association, Dr. Peter P. Chase was under the impression that the meeting was to be a general one and that each member was to be permitted to present his views on the subject.

Dr. Abbate moved as an amendment to the motion, that a general meeting of the Rhode Island Medical Society be held, at which this matter of state medicine should be discussed. Dr. Kelly stated that he thought a vote should be taken at this meeting and felt that the Society would not get any further by having a general meeting.

The amendments were ruled to be out of order. Dr. Mowry's original motion was then put to a vote and was carried.

Dr. Miller made the motion that the House of Delegates does not approve the principles and Proposals of the Committee of Physicians in the form presented, and being duly seconded, the motion was carried.



Dr. Abbate made a motion that the President be empowered to call an open meeting for Thursday, December 2, the same to be held at 9 A. M., and being duly seconded, it was so voted, the hour being the choice of the majority of the members present.

The meeting was adjourned at 6 P. M.

Respectfully submitted,

GUY W. WELLS, M.D., *Secretary*

### Special Meeting of December 2, 1937

A special meeting of the Rhode Island Medical Society was held at the Medical Library on Thursday, December 2, 1937, and was called to order by the President, Dr. Walter C. Rocheleau, at 9:00 P. M. The minutes of the special meeting of the House of Delegates, held on November 24, were read by the Secretary and were approved as read. The President stated the purpose of calling this meeting at the request of the House of Delegates: to consider the proposals of the Committee of Physicians in the provision of medical care, and first called upon Dr. Hammond.

Dr. Hammond submitted for action the Resolution proposed by Dr. Miller and approved by the House of Delegates at the meeting on November 24, namely,—RESOLVED “that the House of Delegates does *not* approve the Principles and Proposals of the Committee of Physicians in the form presented.” Dr. Burgess moved that the Rhode Island Medical Society approve the report of the House of Delegates and adopt the Resolution expressed therein. The motion was seconded by Dr. Champlin.

At the request of the President, Dr. Hammond presented the following explanation of the Principles and Proposals in question:

“The President has asked me to explain the origin of the Committee of Physicians, the Principles and Proposals which they have adopted, and the present status of the controversy.

“You are all doubtless familiar with the studies which have been carried on by the American Foundation, which resulted in the publication in April 1937 of “American Medicine. Expert Testimony out of Court.” Following the publication of this two volume work, a Committee of Physicians was organized to study the findings of this survey. These physicians state that they are in agreement with the findings brought out by this study and suggest certain Principles and Proposals to improve medical care.

“They believe that close co-operation between physicians, economists and sociologists is essential. They feel that the medical profession should initiate any proposed changes, because physicians are the experts upon whom communities must depend. They state that certain alterations in our present system of preventing illness and providing medical care may become necessary; indeed, certain changes have already occurred. Changes in economic and social conditions are taking place and medicine must be mobile and not static, if medical men are to act as expert advisers of those who convert public opinion into action. The conviction of this group is general that action should be taken only upon the basis of demonstrated need and as experience accumulates to indicate that such action is likely to attain its end, in a nation comprising forty-eight states, in which climatic, economic and social conditions vary greatly.”

Dr. Hammond then read the Principles and Proposals of the Committee of Physicians and continued:—“The subscribers to the above Principles and Proposals hold the view that health insurance alone does not offer a satisfactory solution on the basis of the Principles and Proposals enunciated above. These Principles and Proposals were sent to a large number of outstanding members of the medical profession in this country, representing various specialties, to medical teachers, heads of hospital services, hospital superintendents, and to those in administrative positions. Many signatures were obtained and many other physicians refused to support these Principles and Proposals. In the meantime the Proposals, slightly modified, had been presented to the House of Delegates of the American Medical Association at the recent Atlantic City session, by the House of Delegates of the Medical Society of the State of New York. They were carried before a reference committee and, in several sessions of that committee, a considerable number of physicians presented arguments for and against their adoption. The House of Delegates, however, after thorough consideration of the report of the reference committee, and with full cognizance of the method of development of these Principles and Proposals and of the considerations which were involved in their passage by the House of Delegates of the Medical Society of the State of New York, did not accept them. The House of Delegates did, however, point out the willingness of the medical profession to do its utmost today as in the past to

provide adequate medical service for all those unable to pay either in whole or in part.

"Why, then, any necessity for the circulation of petitions presenting proposals for fundamental changes in the nature of development, distribution and payment of medical services? Is there a well designed plan to impress the executive and legislative branches of our government with the view that the American medical profession is disorganized, distrustful of its leaders, undemocratic in its action and opposed to the best interests of the people? Who may profit from such evidence of disorganization? Is there any evidence that the self-appointed Committee of Physicians and the 430 physicians who have affixed their names to these Principles and Proposals are any better able to represent the opinion of the American medical profession than the democratically chosen House of Delegates of the American Medical Association—one of the most truly representative bodies existing in any type of organized activity in this country today?

"The House of Delegates has given its mandate to the Board of Trustees, to the officers and to the employees of the Association. That mandate opposes the Principles and Proposals emanating from the Committee of Physicians, and equally the new proposals. If the House of Delegates sees fit to depart from the principles now established, it will be the duty of the Board of Trustees, the officers and the employees of the American Medical Association to promote such new principles as the House of Delegates may establish. Until, however, the regularly chosen representatives of the 106,000 physicians who constitute the membership of the American Medical Association determine, after due consideration, that some fundamental change or revolution in the nature of development, distribution and payment for medical service in the United States is necessary, physicians will do well to abide by the principles which the House of Delegates has established. They will at the same time deprecate any attempts inclined to lead executive and legislative branches of our government, as well as the people of the United States, into the belief that the American medical profession is disorganized.

"In the meantime other principles and proposals have been advanced by other groups, editorial writers, and medical organizations, until the whole subject has become confused from too many cooks trying to spoil the broth. It would seem wise to leave

the whole subject in the hands of the duly elected representatives of the medical profession, the House of Delegates, Trustees and officers of the American Medical Association, who have expressed their willingness to co-operate in every way with any governmental or other qualified agency in studying the need of all or any group of the people for medical service and to determine to what extent any considerable proportion of our public are actually suffering from lack of medical care."

The Secretary then made the following remarks:

"Before discussing the Principles and Proposals of the Committee of Physicians it may be well to clarify the issues by removing from consideration the term, socialized medicine. Whether such a plan would lead to socialization or to a government dictatorship is of little matter for they are equally repugnant and in the end injurious to medical progress. Many of the signers of the petition have stated they are not in favor of any plan that would lead to socialization.

The question arises as to the necessity or even the desirability of these proposals. Will they more effectively prevent the passage of legislation inimical to medical progress? Will they increase medical progress?

"Yearly bills have been introduced in Congress regulating the practice of medicine. During depression, particularly between 1932 and 1934, two rich and powerful Foundations gave active support to plans organized medicine considered detrimental to public health. Congress was frantically examining any plan that might alleviate the distressed. Did not your representative, the American Medical Association, meet the issue successfully? Did these bills become laws? Where are the Foundations today? During the darkest days the bills were defeated. The Foundations are through. The American Medical Association, at your direction, is still functioning. Medicine today is in less danger of intervention by forces outside the profession than at any time since 1929. How then, can the Proposals as printed be expected to protect the practice of medicine more successfully?

"The second question 'Will the Principles and Proposals increase medical progress, that is, improve medical care?' Under our present system American medicine has progressed more rapidly than in any continental country. In most European states medicine is fairly strictly regulated. Whether governmental control in medicine as well as other fields is due to the constant threat of war is beside

the question. The fact remains that government control exists to a great degree and that medical progress in European countries lags far behind that of the United States. However, one may say that changes within the borders of our country make changes in our medical policy desirable. If such a contention were true, we already have an excellent method of modifying our policy in accordance with the need. Members of District Societies have articulate representation in the State Societies. State Societies through their duly elected delegates control the American Medical Association. The American Medical Association is bound to carry out the will of its component Societies. It does not and cannot impose the will of the parent society on you. This is truly a democratic form of government. Would not the majority of 106,000 members sense the necessity and have they not ample means of changing the policy of the American Medical Association at its yearly meeting? How could American medicine have reached its present state of development, one which has surpassed every country that has governmental control, if our policy has been static? Contrasted to the present system, we are offered for consideration a proposal for governmental subsidy. Acceptance of governmental subsidy will involve governmental regulation. That seems to me inevitable. During the brief years of depression we have seen plenty of instances of Federal Regulation where Government money was concerned. A few of these were enumerated the other evening in the House of Delegates. Examples in foreign countries should make us apprehensive of domination by any outside force if medical progress is to continue.

"I have asked only two questions in the present discussion.

"Will acceptance of the Principles and Proposals tend more effectively to prevent the passage of legislation inimical to Medical Progress?

"Will the Proposals increase medical progress?

"I believe the action of the House of Delegates in this matter on November 24 should be supported for the reason cited, that a need for a change in medical policy does not exist. When such a need is demonstrated we have amply tested methods to make such changes as are advisable."

Dr. Farrell then spoke as follows:

"Some years ago 'The Committee on the Costs of Medical Care' made an attempt to influence medical and lay opinion in support of plans for radical

reorganization of medical care. The medical profession rejected the majority report, but accepted a minority report. The profession has expressed itself as not insisting on maintaining 'The Status Quo' just because it is the 'Status Quo' but is always willing to improve and advance medical care under proper safeguards. However, the attempts of sociologists to force their opinion on the medical profession, even through its own members, has never ceased! This is evinced by the more recent attempt of the American Foundation poll of 2200 physicians out of 106,000 on their opinions regarding changes in medical practice. Naturally, *all* the advocates of change rushed to support the cause—as all zealots do—and the great mass of the profession plugged on in daily practice.

"Even the sponsors of the American Foundation report admit that such men as educators, specialists, and administrators were in the majority, but they offer the excuse that such sampling was inevitable because this class were more accessible and answered more frequently. Most assuredly they did! Why?—They had but to dictate a lengthy opinion to a secretary and mail it off—while the rank and file had neither the time, nor the help necessary to evaluate and answer the problems affecting them. With the results of their 'so called' analysis published, these interested groups presented proposals to the President of the United States with the expressed intention (according to the report of Dr. John M. Peters, secretary of the Committee) of influencing those members of the government who might be interested in or contemplating changes in medical care. They hoped to use the evidence collected by the American Foundation (page 5 'The Story of the Principles and Proposals') in influencing the government! In other words, an attempt was made to get governmental approval and to persuade Federal officials that changes were needed along the lines proposed by this group.

"*Later* the Proposals, somewhat modified, were presented to the New York Medical Society and *then* by them to the American Medical Association at the convention last June. After proper deliberation by the House of Delegates this truly representative body rejected them. Nothing daunted, the sponsors enlarged the committee to include 430 prominent physicians mostly educators, specialists, and administrators, and then attempted to circulate

their proposals with the hope that enough important signatures would give it sufficient weight and influence to make it appear that organized medicine was in favor of radical changes. In explanation of their action the secretary of the Committee of 430 physicians maintained "it would seem axiomatic that it is proper for individuals or groups to attempt to influence or alter policies," yet in the same report he admits the Committee received \$700.00 worth of secretarial and publicity assistance from the American Foundation. Whose hand-maidens are they? Why, after being officially rebuffed within the Councils of Medicine must they force the issue in the public press, and why does one of their members indulge in acrimonious dispute with the Editor of the *Journal of the American Medical Association* through the columns of 'The New York Times,' if their interest is the preservation of American Medicine?

"Organized medicine should be quick to voice its sharp disapproval of such activity and to remind all physicians sponsoring change that there are proper channels through which such proposals may go. The American Medical Association has always been ready to co-operate in proposals for the advancement of medical care whenever such proposals fulfilled the necessary safeguards to the public and the profession at large. The proposals of the 430 physicians DO NOT safeguard the public or the profession against 'state medicine.' In the words of the Committee itself, the proposals are '*elastic*.' Such elasticity is dangerous! No approval can be given 'generalizations' even though the proponents deny State Medicine was intended, because the very elasticity of such a scheme soon makes socialization with Federal funds a form of State Medicine and the first step in a government medical bureaucracy."

Dr. Gauthier then spoke for the Woonsocket District Medical Society:

"I feel highly privileged and pleased to bring to you a vote of confidence from the Woonsocket District Medical Society in the form of a resolution that was unanimously adopted at the regular meeting on November 30th, 1937. 'Resolved: That the Woonsocket District Medical Society, mindful of the need of concerted effort necessary to strengthen and keep organized medicine united, expresses its intention of giving unquestionable support to any action that the Rhode Island Medical Society shall take concerning a certain committee of physicians and the principles and proposals that they favor.'

"Our only concern this evening is to vote either for or against the motion before the house, I am for the motion, which means that I am against the Committee and its Principles and Proposals. The resolution before this assembly has been worded very simply, yet adequately. It is understandable, comprehensible, inclusive, and yet it avoids any undue controversy.

"We would be assuming the wrong attitude if we spent our time condemning the signers of this petition. Our attention should be entirely directed to the principles and proposals presented. One can hardly expect government aid or subsidy, without having to submit to government control and all its ramifications. The Committee favoring these Principles and Proposals has and will counter with innumerable explanations to the effect that there is not the slightest commitment of favoring government control. However, with the government furnishing the funds, it is more than likely that it will assume control and thereby, we will be in the midst of government medicine. If such a plan is not the forerunner of government medicine, we must at least admit that it is the best wedge that we have seen in a long time.

"There is a principle involved here, gentlemen, the principle of organization. Organized medicine is made up of its several component societies, correlated and linked by its respective delegates. When a small specialized group decides to evolve "Principles and Proposals" and concentrates on converting and corraling adherents and proponents, taken from this large organized group, this action is a betrayal of the rightful dictates of organization.

"The following question sums up the whole problem:—Do we want the government practicing medicine?—Necessarily, the answer is—no. I believe that it is of the utmost importance that we hold ourselves to very tempered deliberations in discussing such a vital question. Heated arguments will tend to foster indulgence in personalities and make for friction and discord. At no time has there been greater need for co-operation, union and harmony in organized medicine. At no time has there been greater need on the part of the District and State Medical Societies to preserve these happy relations. There seems to be greater confidence of the District Societies in the parent society: the Rhode Island Medical Society. May we conserve this condition and vote upon the resolution before



the assembly in as peaceful and as quiet a manner as possible, so as not to kindle any more friction than is necessary."

Dr. Danforth presented his position as follows:

"I should like the opportunity to state something of my position in regard to the subject under discussion.

"First, I wish to say that I am not in favor of state medicine and in fact I signed the 'Principles and Proposals' because I was and am opposed to medicine under the control of government which means medicine under control of politically minded laymen and that seems to me the surest way to a deterioration of our standards. At the time I signed it seemed probable that some form of government medicine was to be given us by legislative authority against any opposition that medical men might put up. I think that danger is not as imminent now but I do not believe it is entirely overcome and if any form of state medicine must be accepted, it should be in a form devised by the best brains of our profession. My only plea is that if we must accept changes, those changes shall be such as we can all approve as in the interest of medical men and high medical standards and not something that seems opportune or expedient or politically worthwhile.

"Now may I state some of my views in regard to the Principles.

*Principle No. 1:*—That the health of the people is a direct concern of the government.

This is accepted by medical men without hesitation in many health activities, as *a*. Quarantine regulations at our frontiers are to protect all people, not only those that are indigent. *b*. Health regulations for the control of small pox, cholera, scarlet fever, infantile paralysis, measles, syphilis and the like are a part of our present system of medicine and are for every inhabitant. *c*. Milk inspections to stamp out tuberculosis and all the regulations in regard to tubercular patients, also typhoid precautions and such, are carried out by some government department of Health and Medicine

So I believe that in a fairly broad definition we have been accepting Principle No. 1 for many years.

*Principle No. 2:*—That a national public health policy directed toward all groups of the population should be formulated.

This is not definite enough to suit me and I should like to know how it would be worked out

and if it must be formulated, because of legislative activity, it should be so done under medical men chosen for their peculiar fitness and training.

*Principle No. 3:*—That the problem of economic need and the problem of providing adequate medical care are not identical and may require different approaches for their solution.

To this I agree most emphatically.

*Principle No. 4:*—That in the provision of adequate medical care for the population four agencies are concerned: voluntary agencies, local, state and federal governments.

This needs no explanation. It is a condition that has been accepted and we work under it daily.

Now as to the Proposals.

*Proposal No. 1:*—That the first necessary step toward the realization of the above principles is to minimize the risk of illness by prevention.

This, it seems to me, may be accepted without reservation. Its scope has been increasing by constant advances in our knowledge and will so continue. This has always been the work of medical men or of men interested in health problems.

*Proposal No. 2:*—That an immediate problem is provision of adequate medical care for the medically indigent, the cost to be met from public funds (local and/or state and/or federal).

This is one of the most serious matters we have to consider. We might use as an example the Rhode Island Hospital since it is near enough home for us to know and about which we may have opinions. Due to increased costs from required laboratory work, X-ray work, sera, oxygen therapy and constantly advancing but costly methods of surgical and medical treatments combined with reduced income from endowments, the hospital is running at a constantly increasing deficit and consequently a constantly decreasing endowment. If hospital medical care has been reasonably adequate so far, how can it continue? I see no way except by subsidies and I have all the fear of the effect of subsidies that any one of you can have. Regarding this, I wrote Dr. Osgood, who was one of the active workers on the Committee, that it seemed to me that "As soon as subsidies are given, then added control goes with it and the more the subsidy the more the control." His reply was, "This is, of course, to some extent true, but these subsidies are now being given by State or Federal agencies to various private medical organizations in order to

allow them to continue with their work and clinics which would otherwise have to be abandoned," but he also wrote, "I have no hesitation in saying that, badly as it may have been executed, the aim of all those who drew up the 'Principles and Proposals' was to prevent, if we possibly could, the further intrusion of the federal government into the practice of medicine and we were trying to prevent further government control of medical activities."

*Proposal No. 3:*—That public funds should be made available for the support of medical education and for studies, investigations and procedures for raising the standards of medical practice. If this is not provided for, the provision of adequate medical care may prove impossible.

*Proposal No. 4:*—That public funds should be available for medical research as essential for high standards of practice in both preventive and curative medicine.

*Proposal No. 5:*—That public funds should be made available to Hospitals that render service to the medically indigent and for laboratory and diagnostic and consultative services.

Unless funds from voluntary sources are adequate, it seems to me, funds from some tax source must be used for all these Proposals (*i. e.*, Proposals 3, 4 and 5).

*Proposal No. 6:*—That in allocation of public funds existing private institutions should be utilized to the largest possible extent and that they may receive support so long as their service is in consonance with the above principles.

If we accept the fact that private sources are no longer adequate to provide the conditions of Proposals 3, 4, and 5 then we must accept 6.

*Proposal No. 7:*—That public health services, federal, state and local, should be extended by evolutionary process.

I think we all may agree.

*Proposal No. 8:*—That the investigation and planning of the measures proposed and their ultimate direction should be assigned to experts.

It seems to me no one would hesitate to affirm this.

*Proposal No. 9:*—That the adequate administration and supervision of the health functions of the government, as implied in the above proposals, necessitates in our opinion a functional consolidation of all federal health and medical activities, preferably under a separate department.

Perhaps we are not ready to accept this but something of the kind may be given us and if we

do not ourselves formulate the plan it may be less well done.

"In closing let me say for myself that in signing, my entire idea and aim was to prevent, if possible, the further intrusion of the Federal Government into the practice of medicine. I hoped to have a little part in preventing further governmental control of medical activities. If this is thrust upon us, I do believe that we ought to be ready to advise and direct its method."

Dr. Burgess then stated that Dr. Danforth had expressed in his discussion exactly the point of view which he had when signing these Principles and Proposals. He called attention to the fact that hospitals need aid and if they are to run they must get money somewhere. He also stated that the signatures to these Principles and Proposals were given before the action of the House of Delegates was made public, that he did not want a split in organized medicine, and that it was time to disapprove of these Principles and Proposals in their present form.

Dr. Champlin stated that introduction of ideas and proposals should go through the established channel; that these ideas should be reported to the House of Delegates.

The motion that the Rhode Island Medical Society approve the report of the House of Delegates and adopt the Resolution expressed therein was voted upon and unanimously carried.

The meeting was adjourned.

Respectfully submitted,

GUY W. WELLS, M.D., *Secretary*

## WOONSOCKET DISTRICT MEDICAL SOCIETY

### Minutes of the November Meeting

The Woonsocket District Medical Society held a meeting on November 30th, 1937. At this meeting, a slate of new officers was presented. The officers chosen are as follows:

President, Francis T. King; Vice President, L. V. Conlon; Secretary, G. G. Dupre; Treasurer, V. H. Monti; Delegate, J. M. McCarthy; Councilor, H. E. Gauthier; Censors, A. Fontaine and J. Reilly.

As is customary, supper was served to the thirty-one members present. The entire evening was devoted to discussion of "Socialization of Medicine."

Respectfully submitted,

GUYON G. DUPRE, M.D., *Secretary*

## PROVIDENCE MEDICAL ASSOCIATION

### Minutes of the December Meeting

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. Peter Pineo Chase, on Monday, December 6, 1937, at 8:45 P. M. The minutes of the last meeting were read and approved. Their applications having been approved by the Standing Committee the following were elected to membership:

Emilio A. Catullo  
Edward Damarjian

The Secretary reported for the Standing Committee regarding the nominations of officers and committees for the year 1938.

Dr. Foster Kennedy, Professor of Clinical Neurology, Cornell University Medical College, read a paper entitled "The Treatment of Acute Skull Injury and the Appraisal of Its Aftermath." The paper was discussed by Dr. Wilfred Pickles, Dr. Madelaine Ray Brown of Boston, and Dr. Walter C. H. Weigner. The meeting adjourned at 10:15 P. M. Attendance 153. Collation was served.

Respectfully submitted,

HERMAN A. LAWSON, M.D., *Secretary*

### Miriam Hospital

#### COMPLIMENTARY DINNER TO DR. MORRIS FISHBEIN

The Board of Trustees of the Miriam Hospital entertained the medical staff at a complimentary dinner given in the Empire Room of the Crown Hotel, Saturday, December 18, at 8:00 P. M. Dr. Morris Fishbein, editor of *The Journal of the American Medical Association*, was the guest of honor and the speaker of the occasion. It was attended by one hundred and thirty-five staff members and guests.

Mr. Alter Boyman, Chairman of the Committee of Arrangements, introducing Mr. Max L. Grant, President of the Board of Trustees, as toastmaster, indicated the growth of the Miriam Hospital in the past twelve years by the increase in its medical and surgical staff from twenty-five to one hundred and twenty members. Mr. Grant, as toastmaster, called on Dr. Harry Friedman, President of the Miriam Hospital medical staff, and on Dr. Harold Libby, who, speaking on "The Miriam Hospital's Prog-

ress," indicated the need for future expansion. Dr. Alexander M. Burgess, speaking on "The Hospital and the Practicing Physician," emphasized the increasing importance of the hospital in medical work. He mentioned the report of the Committee of Physicians as a misunderstood attempt to solve the problem of increased expense and diminished contributions in the conduct of voluntary hospitals. Major Charles M. Hoffman, Superintendent of Miriam Hospital, presented an optimistic view of the future charitable support of the institution. Mr. Grant then introduced the distinguished guest speaker.

Dr. Fishbein spoke on "The Hospital and the Community." He described the progress of medicine in the past fifty years, fostered by the development of the voluntary hospital system and the introduction of anesthesia and of asepsis. He emphasized the value of the work of the American Medical Association and the American College of Surgeons in elevating the standards of our medical schools and hospitals and indicated that such progress could not have resulted under any form of bureaucratic control. Charity and the voluntary care of the sick are not dead issues in this country. Dr. Fishbein made the practical recommendation that the members of each county medical society get together and see that no indigent person in their community suffers from lack of medical care. Of the Principles and Proposals of the Committee of Physicians he favors the last:—"That the adequate administration and supervision of the health functions of the government . . . necessitates . . . a functional consolidation of all Federal health and medical activities, preferably under a separate department." This proposal has long been supported by the American Medical Association.

Dr. Fishbein's address was received with enthusiasm and at its close the audience rose as they joined in applause. The meeting was adjourned at 12:15 A. M.

### Rhode Island Hospital

Dr. George E. Bowles of Plymouth, N. H., left the Rhode Island Hospital on December 1st, having been an intern for two years. Dr. Bowles is a graduate of Tufts College and Tufts Medical School.

On July 25th, at the Lying-In Hospital, a son was born to Dr. and Mrs. Stanley Davies of War-

wick, R. I. Dr. Davies interned at the R. I. H. and Mrs. Davies is a graduate of the R. I. H. School of Nursing.

Dr. Seth Read of Belfast, Maine, started a two years internship December 15th. Dr. Read is a graduate of Bowdoin College and Harvard Medical School.

### Woonsocket Hospital

At the November meeting of the Woonsocket Hospital Staff, Dr. John V. O'Connor read a paper on "Some Phases of Acute Heart Failure." Several members of the staff joined in the discussion. Dr. Thomas J. Lalor gave a review of a case of "Collapsed Lung."

The clinical conference was held November 22nd. A case of cancer of the larger bowel was presented by Dr. Francis J. King. The second case, one of pernicious anemia from the medical service, was presented by Dr. Thomas J. Lalor.

A program of weekly conferences has been started and these will alternate weekly from surgical to medical.

### MEMORABILIA

#### December 10

At the regular meeting of the William W. Keen Medical Club, entertained by Dr. Guy W. Wells, Dr. George W. Waterman read a paper on "Endometriosis."

#### December 13

Dr. J. Murray Beardsley entertained the Thirty-four Medical Club. Dr. Richard H. Overholt of the Lahey Clinic read a paper on "Cancer of the Lung." The paper was illustrated with lantern slides and motion pictures. It was discussed by Dr. Reeve H. Betts and by members of the club.

#### December 16

The regular monthly meeting of the Staff Association of St. Joseph's Hospital was held at 12:00 noon. Dr. Vincent J. Oddo read a paper on "Some Diseases of the Kidney." Annual reports of the activities of the hospital and the staff were presented. Luncheon was served at 1:00 P. M.

#### December 21

At the regular monthly meeting of the General Staff of the Homeopathic Hospital of Rhode Island, Dr. John Rock presented an address on "More About Endocrinology." Luncheon was served.

### AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF GASTRO-ENTEROLOGY

The Rhode Island Branch of the American Association for the Advancement of Gastro-Enterology held its fall meeting at 6 P. M. November 9, 1937, at the Anawan Club, Rehoboth. Following dinner Dr. Thomas J. Hepburn, Professor of Surgery at Tufts Medical College, read a paper on "Peptic Ulcer—Its Treatment, Medical and Surgical." Active discussion was participated in by Drs. Wells, Gerber, Jones, Donley, Clarke, Hussey, Leet, Davis, Cummings, Wing and Eddy. After remarks for the good of the order the meeting was adjourned.

JESSE P. EDDY, 3RD, M.D., *Secretary*

### Rhode Island Hospital

#### SCHEDULE FOR JANUARY, 1938

Thursday, January 6, 1938:

Gyn Staff Meeting 8:30 P. M.

Friday, January 7, 1938:

G. U. Staff Meeting 7:30 P. M.

Surg. Staff Meeting 8:30 P. M.

Tuesday, January 11, 1938:

Clinical Path. Conference 12:00 noon

Tuesday, January 25, 1938:

Clinical Path. Conference 12:00 noon

Mondays:

Surgical Grand Rounds 10:00 A. M.

I Surgical Grand Rounds, January 3, 17, 31

II Surgical Grand Rounds, January 10, 24

Thoracic Clinic 4:30 P. M.

Tuesdays:

Gastro-Intestinal Clinic 9:30 A. M.

Surgical Grand Rounds 10:00 A. M.

I Surgical Grand Rounds, January 11, 25

II Surgical Grand Rounds, January 4, 18

Wednesdays:

Tumor Clinic 10:00 A. M.

Note: The Skin Clinics have been temporarily discontinued

Thursdays:

Orthopedic Grand Rounds 9:00 A. M.

Thoracic Clinic 11:30 A. M.

Fridays:

Fracture Grand Rounds 11:00 A. M.

Pediatric Grand Rounds, Jan. 14, 28, 11 A. M.

Saturdays:

Neurological Grand Rounds 9:00 A. M.

Medical Conference 10:00 A. M.